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(54) SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

(57)Abstract:

PURPOSE: To separate a p plate electrode required in order to increase the charge amount accumulated in a storage node by boosting the plate electrode in a DRAM.

CONSTITUTION: A phosphorus doped polycrystalline Si film about 150nm thick is deposited on a substrate whereon a phosphorus doped polycrystalline Si film pattern and an ONO film are formed and after depositing an Si₃N₄ film, coated with a resist film to be etched away so as to leave a resist film 14' between the phosphorus doped polycrystalline Si film patterns only. In such a constitution, the Si₃N₄ film is etched away using the resist film pattern 14' as a mask, as well as the surface of the phosphorus doped polycrystalline Si film in depth of exceeding 20nm is oxidized using the Si₃N₄ film 12 as a mask to form an SiO₂ film and finally to be etched away meeting the etching requirement for the specific etching rate exceeding 10 and using the SiO₂ film as a mask.

